

**UNITED STATES DEPARTMENT OF COMMERCE****Patent and Trademark Office**Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
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041

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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09/652,993 08/31/00 AGARWAL

V 98-0616.03

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EXAMINER

CHARLES B BRANTLEY II  
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BOISE ID 83716

DTA7-T

ART UNIT

PAPER NUMBER

2815

DATE MAILED:

04/11/01

Please find below and/or attached an Office communication concerning this application or proceeding.

**Commissioner of Patents and Trademarks**

|                              |                 |                    |
|------------------------------|-----------------|--------------------|
| <b>Office Action Summary</b> | Application No. | Applicant(s)       |
|                              | 09/652,993      | AGARWAL, VISHNU K. |
|                              | Examiner        | Art Unit           |
|                              | José R. Diaz    | 2815               |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_ .
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 4-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 4-9 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claims \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_ is/are objected to by the Examiner.
- 11) The proposed drawing correction filed on \_\_\_\_ is: a) approved b) disapproved.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. § 119

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_ .
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

#### Attachment(s)

- 15) Notice of References Cited (PTO-892)
- 16) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,4 .
- 18) Interview Summary (PTO-413) Paper No(s). \_\_\_\_ .
- 19) Notice of Informal Patent Application (PTO-152)
- 20) Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

➤ The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

➤ Claims 4-7 are rejected under 35 U.S.C. 102(e) as being anticipated by Cuchiaro et al. (US Patent No. 6,165,802).

Regarding claim 4, Cuchiaro et al. teach a method of passivating a conductive material (see columns 1-16), comprising: providing said conductive material (124), wherein said conductive material has an ability to associate with oxygen (see Figure 1); and exposing said conductive material to a plasma (see col. 10, lines 43-45).

Regarding claim 5, Cuchiaro et al. teach that said step of exposing said conductive material to a plasma causes a reduction in said ability of said conductive material to associate with oxygen (see col. 10, lines 43-45).

Regarding claim 6, Cuchiaro et al. teach that said step of exposing said conductive material to a plasma comprises exposing said conductive material to a plasma containing a selection of nitrogen and hydrogen (see col. 10, lines 43-45).

Regarding claim 7, Cuchiaro et al. teach that said step of exposing said conductive material to a plasma containing nitrogen comprises exposing said conductive material to a plasma selected from a group consisting of an N<sub>2</sub>/H<sub>2</sub>, plasma,

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an N<sub>2</sub> plasma, an H<sub>2</sub> plasma, an NH<sub>3</sub> plasma, and mixtures thereof (see col. 10, lines 43-45).

***Claim Rejections - 35 USC § 103***

➤ The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

➤ Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cuchiaro et al. (US Patent No. 6,165,802).

Cuchiaro et al., as stated supra, essentially discloses the claimed invention but fails to show the ranges of gas flow rate, RF power and the pressure of each of the plasma processes claimed by Applicant. Regarding claims 8 and 9, it would have been obvious to one of ordinary skill in the art to include such ranges, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. Furthermore, with regards claim 9, Official Notice is taken with respect to the limitation regarding the use of an NH<sub>3</sub> plasma since it is obvious and well known in the art that NH<sub>3</sub> is formed from the reaction of N<sub>2</sub> and H<sub>2</sub> gases. Therefore, it would have been obvious to one having ordinary skill in the art at the same time the invention was made to have modified Cuchiaro et al. to include ranges of gas flow rate, RF power and pressure since such modification involves only routine skill in the art, as described in In re Aller, 105 USPQ 233.

***Conclusion***

➤ The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Takaishi (US Patent No. 5,726,083) disclose process of fabricating DRAM having storage capacitor low in contact resistance and small in leakage current through tantalum oxide film.

***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to José R. Díaz whose telephone number is (703) 308-6078. The examiner can normally be reached on 8:00 - 5:00 Monday through Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



EDDIE LEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800

JRD  
April 9, 2001